You can ELIMINATE if and only if:

1) _____

2) _____

Example 1:

1) $\begin{cases} 3x - y = 8 \\ 2x + y = 7 \end{cases}$

2) $\begin{cases} x + y = 14 \\ x - y = 4 \end{cases}$

3) $\begin{cases} 3x + 2y = 7 \\ 5x - 2y = 1 \end{cases}$

1) $\begin{cases} 4x + 5y = 6 \\ 4x - 2y = -8 \end{cases}$

2) $\begin{cases} 3x+2y=2 \\ -1(3x+y)=(7)-1 \end{cases}$

$3x+2y=2$

$-3x-y=-7$

$y=-5$

$3x+2(-5)=2$

$3x-10=2$

$3x=12$

$x=4$

$(4,-5)$

X

Consistent

Independent

3) $\begin{cases} x - 2y = 2 \\ 3x = 2y + 10 \end{cases}$

$-2y \quad -2y$

$4 - 2y = 2$

$-4 \qquad -4$

$-2y = -2$

$y = 1$

(4, 1)

$x - 2y = 2$

$-1(3x - 2y = 10) + 1$

$x - 2y = 2$

$-3x + 2y = -10$

$-2x = -8$

$x = 4$

$12 = 2y + 10$

$2 = 2y$

$1 = y$

4) $\begin{cases} 2x + y = 25 \\ 2x = 5y + 7 \end{cases}$

Independent Systems:

1) $\begin{cases} 2x+5y=15 \\ -4x+7y=-13 \end{cases}$ $\cdot 2$

$2x+5(1)=15$

$2x+5=15$

$2x=10$

$x=5$

$(5,1)$

$4x+10y=30$

$-4x+7y=-13$

$17y=17$

$y=1$

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2) $\begin{cases} 6r + 7t = -15 \\ -3r + t = -6 \end{cases}$ $\cdot 2$

$6r + 7t = -15$

$-6r + 2t = -12$

$9t = -27$

$t = -3$

$6r + 7(-3) = -15$

$6r - 21 = -15$

$+21 \quad +21$

$6r = 6$

$r = 1$

$(1, -3)$

Consistent

Indep

$$\begin{cases} 2x - 7y = 3 \\ 5x - 4y = -6 \end{cases}$$

$-5(2x - 7y) = (3)(-5)$

$2(5x - 4y) = (-6)2$

$-10x + 35y = -15$

$10x - 8y = -12$

$27y = -27$

$y = -1$

Consistent Ind.

$(-2, -1)$

$2x - 7(-1) = 3$

$2x + 7 = 3$

$-7 \quad -7$

$2x = -4$

$x = -2$

4) $\begin{cases} 2y - 4x = 18 \\ -5x + 3y = 23 \end{cases}$

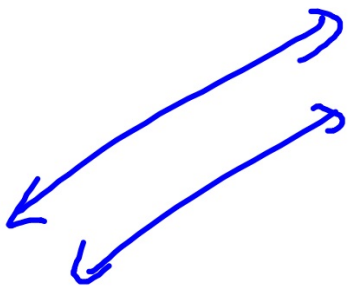
Dependent and Inconsistent Systems:

5) $\begin{cases} 2x+5y=12 \\ 2x+5y=15 \end{cases}$ $\cdot(-1)$

$-2x-5y=-12$

$2x+5y=15$

$0=3$



No Solution

Inconsistent

6) $\begin{cases} 8x + 4y = -16 \\ 2x + y = -4 \end{cases}$

1) $\begin{cases} 5x + 3y = 2 \\ 2x + 20 = 4y \end{cases}$

2) $\begin{cases} 2x = 5 + 4y \\ 2y = 8 + x \end{cases}$

3) $\begin{cases} 4y + 30 = 10x \\ 5x - 2y = 15 \end{cases}$